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The white sails glittered in the sun ;  
And while her onward course she won,  
The crouching billows seemed to own  
Her right to ride triumphantly.

And all that on her deck then stood  
Were gay, and in most joyous mood ;  
For, oh ! they thought their voyage should  
That day be ended happily.

But what may profit human thought ?  
Man dares—but cannot change his lot :  
And hope, tho' high, availeth not,  
With all its vain imaginings.

Scarce had the sun sunk down to rest—  
Scarce had the seamew sought her nest—  
Scarce had all splendour left the west—  
Ere rush'd the tempest spirit forth.

In wrath, it lash'd the waves to foam ;  
High leaped they up tow'ards heaven's high dome,  
As if they sought to find a home,  
Where they might dwell in quietness.

Bright flash'd the lightning thro' the sky,  
Showing to every anxious eye,  
The fiercely scowling clouds on high,  
And billows raging fearfully.

These gaped to seize their helpless prey,  
As prone upon the surge she lay,  
Awaiting the dark destiny  
To which she fast was hurrying.

Hark ! the tall masts are overthrown !  
The sails, the spars, the helm are gone,  
And o'er the waste of waters strown,  
In melancholy recklessness.

And now without a hand to save  
From the wide yawning of the wave,  
She sinks into her earthless grave,  
Down, down thro' waters fathomless !

Oh ! what a shriek arose on high,  
Despair was in that fearful cry,  
Full well it told of misery,  
And dark and dreadful death !

A minute ! it has passed away—  
Hope came not, with its fond delay,  
Brief was the struggle—gone are they  
Whom life inspired a moment past.

And where before, in power and pride,  
The bark had spurn'd the rolling tide,  
The raging waves in triumph ride,  
In all their dreary loneliness.

*Belfast.*

*A.*

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“ A FISH OUT OF WATER.”

It is more than probable, that every reader of this miscellany, however philosophically indifferent to the vicissitudes of life, has at some period of his existence felt a little out of his element, or as the old proverb has it, “like a fish out of water.” If he be a sailor, he has

doubtless felt aground when actually so: if a soldier, terrestrial by nature, he has felt most out of water when nearest to it. Has not the judge found strange the transition from a seat of judgment to the stool of penitence; and even stranger have been the sensations of the once criminal, (forgive me, gentle reader, but our circulation is universal) when required in the new world of Australia, to exercise the novel functions of a juror? Had Alexander Selkirk, or his representative Robinson Crusoe, been a lawyer, could he have existed in an element where apes sat listening to his speeches, and parrots alone replied to his arguments? Is there no orthodox divine, who, expanding the sable covers of his intended discourse, has found himself dry even to feverishness, on discerning not the expected pages, but the last tract on the "Divine Origin and Right of Tithes," the accidental subject of his evening's meditations? And does the purer portion of the creation furnish us with no example—can woman, who moulds at will the feelings of others, always regulate and control her own? Look then at yonder couple—a celebrated city dowager and her tender daughter—their ill-accustomed milliner has reversed the well-chosen tints of their silken garments—the delicate fawn kindles under the glowing visage of the matron, whilst the timid maid shrinks from the crimson flames around her: alas! who would attempt to probe or describe their feelings? Judge of them by their looks. The one appears, as it were, the first flame of a conflagration, bursting from the smoke already gleaming with its light; the other, the placid Lucretia, like a statue of Herculaneum, amidst the burning lava of Vesuvius. But where is the spirit of illustration leading us—are we not winging our way in this new element beyond the last pinnacle of reason? Let us alight, and in more sober strain proceed to observe, that familiar as is the expression, "like a fish out of water," many have, probably, never inquired why a fish removed from its native stream, struggles convulsively and dies; and more will feel surprised, when told that all its agony is due to the want of air, that air which surrounds it, whilst the removal from water is only the secondary cause of death.

To explain this seeming paradox, it is necessary to advert briefly to the two principal modes of effecting respiration; namely, by lungs, and by branchiæ or gills. The object of both of these is the same: to supply oxygen to the blood: in the one that supply is obtained direct from air; in the other from air also, through the intervention of water; for our readers will remember, that the water itself is not decomposed, but simply the air contained in its pores.\* In lungs the air rushes, in the act of inspiration, into a congeries of cells, on the surface of which are spread the blood vessels, which may therefore be considered external to the supply of air. In gills, on the contrary, the fluid impregnated with air circulates round the folds or plaits on which the blood vessels are distributed, being internal to the supply of air. In both cases the coats of the vessels must be sufficiently thin, to admit of the exercise of chemical affinity between the carbon, or other principles of blood, and the oxygen of the air; and that, "whether" (to use the words of Dr. Henry,) "the oxygen is absorbed through the coats of the vessels, and displaces carbonic acid, which may be supposed to have pre-existed in

\* As water is a definite chemical compound of oxygen and hydrogen, and air merely a mixture of oxygen, nitrogen, carbonic acid and aqueous vapour, it is easy to understand how much more difficult would be the separation of oxygen from water, than it is from air, and the consequent complication of the whole process of respiration.

the blood : or whether this acid be not rather generated by the union of the inspired oxygen with the carbon of that fluid." Having now explained the variation in the mode of applying air to the surface of the blood vessels in animals living in air, and in those living in water, we may inquire why this essential organ of animal life is thus modified—why, in short, fish do not inspire water by lungs? Geoffroy Saint Hilaire, in his recent work, "*Principes de Philosophie Zoologique*," (a report of the interesting discussion before the *Académie Royale des Sciences*, between him and the great Cuvier, of the principle of analogies, advocated by Saint Hilaire) has two passages bearing on this subject, which we shall condense and quote in inverted order. Approximating the organization of fish to that of the higher animals, he asks—"In fact, on what do the points of difference bear? Solely on those regions and parts, the assemblage of which constitutes the organ of respiration, on parts here accommodated to air as a medium—there to water : and in both cases having the same function to perform, namely, the oxygenation of venous blood.\* In the one, the air is precipitated to the bottom of a sanguineous sac, constituting the pulmonary apparatus or lungs. In the other, the sac may be considered as turned inside out, as the finger of a glove might be, and separated into strips by openings or slits in its bottom, and in this new form constituting the branchial apparatus or gills, which still act on air, though here mixed up and retained between the molecules of water."

As analogy of functions, rather than that of parts is our object, we shall not dwell on this somewhat strained explanation of the transformation of lungs to gills. In the other passage, Saint Hilaire thus expresses himself—"It is then simply necessary, first, as regards the air, as the medium, that the surfaces of the organ of respiration be extended, its length increased, and that it should be placed in the centre of the animal ; since the air through its elasticity will insinuate itself to the most remote recesses, provided an entrance be afforded to it ; and, second, as regards a medium of water, that all the parts of the respiratory apparatus be concentrated together, and brought towards the external surface of the animal, so that they may be continually immersed in the ambient and non-elastic fluid, thereby facilitating the contact of that fluid with the molecules of the blood, which have here to make a double effort of attraction, sufficient to overcome at once the cohesion of the air and water, and that of the elements of the air itself."

In this explanation there is assuredly much truth, but it will gain in force by a reference to the mechanical process of respiration. In air the required expansion of the chest is easily effected, since the elasticity of air enables it to yield, whether it be internal or external to the body, to a small effect of muscular force, (without displacing the whole column) whilst at the same moment the portion near the mouth expands itself, and fills the cells of the lungs, and thereby the vacuum in the chest. This then is a smooth, easy, and simultaneous operation, without jerk or sudden rush ; and an equal pressure being kept up at both sides of the

\* Although oxygenation is equally necessary to the blood of all animals, there are remarkable differences between the blood of man, and, as one instance, that of fish. In the latter there is no fibrin ; it contains a fat oil, having a fishy smell, and another kind of fatty and rancid matter ; its colouring matter is quite distinct from that of human blood, being soluble in alcohol and ether. These discoveries are due to M. Morin, of Rouen, and arose out of a legal question submitted to him by the magistrates—"whether the stains on the clothes of a prisoner suspected of murder, were those of human blood, or of fish blood, as alleged by him?" A singular instance of the application of abstruse knowledge to the concerns of ordinary life.

coats of the cells, there is no danger of the rupture of their delicate tissue. In a non-elastic medium like water, this gentle breathing could no longer exist: a considerable muscular effort would be necessary to displace, as it could not compress the surrounding fluid, and the water would rush into the mouth with velocity, increasing in proportion to the depth; frequent lacerations of the cells might, therefore, be expected under such an arrangement: but all danger is removed by rendering the vessels internal to the supply of air. The water now presses on their external surface, but the blood by which they are filled supports that pressure; and thus, every tendency to burst is removed by the neutralization of opposing forces.

We have now arrived at the last (as it was the first) part of our subject, and in pointing out the reason why the gills, which are such effectual instruments for extracting oxygen from air, combined with water, fail (at least to appearance) in their action on pure air, submitted to their influence. We shall avail ourselves of the ingenious researches of M. Flourens.\* This anatomist observes—"That water in the respiration of fish can have only three possible kinds of action: chemical, and, if so, the result is not decomposition of that water; physical, in keeping the gills moist,† the advantages of which have been much exaggerated; or mechanical, a form of action hitherto little understood, and yet, in fact, the principal one." M. Flourens now shows, that the act of respiration in fish may be separated into the movements of the external organs or parts of the body; and of those of the internal organs or gills themselves. By the expansion of the external parts, the internal cavity is enlarged, and water admitted by the mouth to the gills: by their contraction the cavity is diminished, and the water expelled through the openings under the gill-covers or opercula. By the movements of the gills themselves in the water admitted into the internal cavity, their laminae are caused alternately to approach and recede from each other, agitating the aqueous particles, and bringing fresh portions in contact with their surfaces. The specific gravities of water, and of the gills of fish, are nearly the same; hence, the latter floats, as it were, and their laminae or fringes are kept asunder without any effort of the animal, their oscillations alone requiring the aid of muscular power. Remove the animal to the air, and his gills being no longer supported by the denser medium, their laminae collapse on each other, and form one heavy mass. The outer surfaces are too limited to furnish the required supply of oxygen. The animal feels the want of it, the external organs are urged to violent efforts, but the power which was sufficient to give vibration to the insulated and floating branchiae, is insufficient to raise or separate them in air—convulsively then he struggles and dies. And as M. Flourens observes—"We now see that the contradiction between these two facts:—the one, that the fish breathes air when in water, and the other that he dies in air from the want of it, is so only in appearance, since it is precisely when in the air, that air cannot penetrate to its lungs

\* *Annales des Sciences Naturelles*, tome 20, Mai, 1830.

† M. Flourens fully proves, that the mere drying of the gills is not sufficient (as was once supposed) to cause the animal's death, by showing, first, that the fish often dies when they are yet moist; and, second, that the life of the fish in air is prolonged by artificially expanding the folds of the gills, although their desiccation is thereby accelerated. Water, it is true, sprinkled on the gills refreshes the animal, but it does so by penetrating between the plaits, and conveying to their surfaces the air retained in its pores. This water cannot, however, be readily expelled, and the access of pure air to replace that decomposed by the gills is difficult; hence, the relief it affords is but of momentary duration.

or gills, and when in the water that it has free access to them.”\* In short, like Tantalus, the fish is surrounded by an element replete with life, yet eluding its panting efforts to sip the renovating stream, more fortunate than he, its agony is brief, and quickly it sinks into the repose of death.

J. E. P.

PERSONAL SKETCH—REV. ROBERT STEPHENSON CROOKE.†

Some philosophers have conceived that the admiration which we naturally bestow upon the imitative arts, is not yielded, in any degree, to the specimens considered in themselves, but is exclusively directed to the *mind*, which is associated with their production. It is the abiding consciousness of the artist's skill which gives its pleasure to the contemplation of his works. Plain people like ourselves, who boast no great astuteness in analysing their feelings—and who think the individual metaphysically mad, who, instead of enjoying his pleasurable emotions, wantonly destroys them, by setting about an investigation of their causes—cannot reasonably be expected to know much respecting a matter so abstruse as this. If, however, there be any truth in the theory, it will serve in some degree to vindicate a taste of ours, which might seem obnoxious to the censure of a connoisseur. Though we appreciate intellect, as employed upon the block of marble or the piece of canvass, we have a higher relish for it when at work with words, its more natural and effective instrument. Mind, in the former instances, may be the ultimate power by which our feelings are aroused—but it is placed far away in dimness and obscurity. We better like to see its clear proportions, and come as close to it as possible. We are not fond of being electrified through a chain of associations; we would rather place our hand at once upon the prime conductor. Under these circumstances, we find that oratory excites an interest which no other manifestation of intellect has the power of producing. We witness the speaker throwing himself and

\* This argument becomes irresistible, when we follow M. Flourens to the further proof, that even in water if the folds of the gills be prevented by artificial means from dilating, the result is the same as in air, namely, decrease of strength, and death.

† This Rev. Gentleman, we are informed, was a passenger on board the *Moirs*, during her fatal passage from Liverpool to Dublin; and in the awful hour of danger performed an act highly creditable to his humanity. When preparing to commit himself to the waves, he observed a very beautiful lady standing upon that part of the deck which lay deepest in the water. Already the sea had reached her neck; and a few moments would have placed her beyond the hope of help. Mr. Crooke instantly proceeded towards her, and leading her to a portion of the vessel which still stood high above the flood, by the aid of a fellow-passenger, secured her to some of the upper works. His assistant in this generous act, who had lately returned from the West Indies, and had passed through many scenes of similar danger, desired the subject of our sketch to strip, and in all respects to follow his example—in which, he said, lay his best chance of ultimate safety. They parted from the vessel; and Mr. Crooke, watching the motions of his companion, perceived that when an opposing wave came, he dived beneath it—and when it receded towards the shore, he committed himself entirely to its impulse. This example he followed so long as he possessed strength to do so; and, when nearly exhausted, seized upon a hen-coop which providentially lay near him, and clung by it until, after many hours, he was picked up by a boat which had been sent out to the assistance of such passengers as might have possibly escaped. The gentleman to whose directions Mr. Crooke's preservation may in a great degree be attributed, perished; but the lady who had been the object of their humanity, was extricated from her perilous situation, and, we believe, still lives.